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CLAIMS:

What is claimed is:

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- 5 1. A method in a data processing system for performing a raster operation of graphics data, wherein the data processing system includes a system memory and a video memory, wherein the system memory and the video memory are connected by a bus and wherein the graphics data is organized into picture elements, the method comprising
- 10 the data processing system implemented steps of:
- reading a first plurality of picture elements from the system memory;
- reading a second plurality of picture elements from the video memory;
- 15 performing a raster operation on the first plurality of picture elements and the second plurality of picture elements to form a plurality of processed picture elements; and
- 20 writing the plurality of processed picture elements to the video memory such that the direction of data on the bus is unchanged between the reading and writing of picture elements.
- 25 2. The method of claim 1, wherein the plurality of processed picture elements form a scan line.
- 30 3. The method of claim 1, wherein the raster operation performs any logical function using a picture element from the system memory and a picture element from the video memory.
4. The method of claim 1, wherein the first plurality

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of picture elements are part of a source bitmap.

5. The method of claim 1, wherein the second plurality of picture elements are part of a destination bitmap.

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6. The method of claim 1, wherein the reading steps, the performing step, and the writing step are performed in a graphics engine.

10 7. A method for performing raster operations in a graphics system, wherein the method comprises the data processing system implemented steps of:

collecting a set of input operations into a batch of input operations substantially equal to a number of

15 rasters in a video display; and

sending the set of input operations on a video bus in a single operation.

20 8. The method of claim 7 further comprising:

collecting a set of output operations into a batch of output operations substantially equal to a number of rasters in a video display; and

25 sending the set of output operations on a video bus in a single operation.

9. The method of claim 7, wherein the set of input operations are sent to a system memory connected to a video bus.

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10. The method of claim 7, wherein the set of output operations are sent to a video memory connected to a

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video bus.

11. A method for performing raster operations in a graphics system, wherein the method comprises the data processing system implemented steps of:

collecting a set of output operations into a batch of input operations substantially equal to a number of rasters in a video display; and

10 sending the set of output operations on a video bus in a single operation.

12. A data processing system comprising:

a bus;

15 a system memory connected the bus, wherein a first plurality of graphics elements are located within the system memory;

a video memory connected to the bus, wherein a second plurality of graphics elements are located within the video memory;

20 a processor unit connected to the bus, wherein the processor unit executes instructions for an operating system, wherein the operating system reads the second plurality of graphics elements within the video memory into the system memory, performs a raster operation on
25 the second plurality of graphics elements within the video memory with the second plurality of graphics elements within the system memory to form a plurality of processed graphics elements, and writes the plurality of processed graphics elements into the video memory,
30 wherein the first plurality and the second plurality form a set of pluralities and between the first plurality and the second plurality, at least one of the pluralities is

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transferred in a single operation.

13. The data processing system of claim 12, wherein the first plurality of graphics elements is a plurality of picture elements.

14. The data processing system of claim 12, wherein the first plurality of graphics elements form a scan line.

15. The data processing system of claim 12, wherein the scan line is a scan line in a bitmap.

16. The data processing system of claim 13, wherein the first plurality of picture elements form a bitmap.

17. The data processing system of claim 12, wherein a graphics engine in the operating system performs the raster operation.

18. The data processing system of claim 12, wherein a video driver in the operating system performs the raster operation.

19. A data processing system for performing a raster operation of graphics data, wherein the data processing system includes a system memory and a video memory, wherein the system memory and the video memory are connected by a bus and wherein the graphics data is organized into picture elements, the data processing system comprising:

first reading means for reading a first plurality of picture elements from the system memory;

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and
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second reading means for reading a second plurality
of picture elements from the video memory;

performing means for performing a raster operation
on the first plurality of picture elements and the second
5 plurality of picture elements to form a plurality of
processed picture elements; and

writing means for writing the plurality of processed
picture elements to the video memory such that the
direction of data on the bus is unchanged between the
10 reading and writing of picture elements.

20. The data processing system of claim 19, wherein the
plurality of processed picture elements form a scan line.

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15 21. The data processing system of claim 19, wherein the
raster operation performs any logical function using a
picture element from the system memory and a picture
element from the video memory.

20 22. The data processing system of claim 19, wherein the
first plurality of picture elements are part of a source
bitmap.

25 23. The data processing system of claim 19, wherein the
second plurality of picture elements are part of a
destination bitmap.

30 24. The data processing system of claim 19, wherein the
first reading means, the second reading means, the
performing means, and the writing means are located in a
graphics engine in the data processing system.

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25. A data processing system for performing raster operations in a graphics system, wherein the data processing system comprises:

5 collecting means for collecting a set of input operations into a batch of input operations substantially equal to a number of rasters in a video display; and sending means for sending the set of input operations on a video bus in a single operation.

10 26. The data processing system of claim 25 further comprising:

collecting means for collecting a set of output operations into a batch of output operations substantially equal to a number of rasters in a video display; and

15 sending means for sending the set of output operations on a video bus in a single operation.

20 27. The data processing system of claim 25, wherein the set of input operations are sent to a system memory connected to a video bus.

25 28. The data processing system of claim 25, wherein the set of output operations are sent to a video memory connected to a video bus.

29. A data processing system for performing raster operations in a graphics system, wherein the data processing system comprises:

30 collecting means for collecting a set of output operations into a batch of input operations substantially equal to a number of rasters in a video display; and

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sending means for sending the set of output operations on a video bus in a single operation.

- 5 30. A computer program product in a computer readable medium for performing a raster operation of graphics data, wherein the data processing system includes a system memory and a video memory, wherein the system memory and the video memory are connected by a bus and wherein the graphics data is organized into picture elements, the computer program product comprising:
- 10 first instructions for reading a first plurality of picture elements from the system memory;
- second instructions for reading a second plurality of picture elements from the video memory;
- 15 third instructions for performing a raster operation on the first plurality of picture elements and the second plurality of picture elements to form a plurality of processed picture elements; and
- 20 fourth instructions for writing the plurality of processed picture elements to the video memory.

- 25 31. A computer program product in a computer readable medium for performing raster operations in a graphics system, wherein the computer program product comprises:
- first instructions for collecting a set of input operations into a batch of input operations substantially equal to a number of rasters in a video display; and
- second instructions for sending the set of input operations on a video bus in a single operation.

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32. A computer program product in a computer readable medium for performing raster operations in a graphics

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system, wherein the computer program product comprises:

first instructions for collecting a set of output operations into a batch of input operations substantially equal to a number of rasters in a video display; and

second instructions for sending the set of output operations on a video bus in a single operation.

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